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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/712,173	11/13/2003	Gene Kim	CM01560L-KIM	7898

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EXAMINER	
DICUS, TAMRA	

ART UNIT	PAPER NUMBER
1774	

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Fort Lauderdale, FL 33322

DATE MAILED: 04/05/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/712,173	KIM ET AL.	
	Examiner	Art Unit	
	Tamra L. Dicus	1774	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 January 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-24* is/are pending in the application.

4a) Of the above claim(s) *14 and 15* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-13 and 16-24* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *11-13-06* 03
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

The cancellation of claims 25-34 is acknowledged. The 112 2nd , 102(b) and 103(a) rejections over Mahachek, and Feng are withdrawn due to Applicant's amendments.

Drawings

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: reference number 108 is not shown in the Figures (see Applicant's specification on page 4, lines 8-10). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claim 11 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The Examiner believes that claim 11 does not have the proper support in the original specification as filed because the specification does not provide any teaching or discussion on how "microcapsules enclose" or capsules encapsulate a quantity of solvent, emulsifier, monomer, or initiator. See page 8, line 4-8 of Applicant's instant specification. Thus one having ordinary skill in the art would not know how to make the instant invention.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-5, 7-13, and 19-24 are rejected under 35 U.S.C. 102(b) as being anticipated by USPN 6,094,273 to Asher et al.

Asher teaches a layer of crystalline colloidal arrays (CCA) made of polymeric particles of any material that exhibits a particle volume change to temperature, and of polyN-isopropylacrylamide (col. 4, lines 50-68-col. 5, line 10, instant claim 21) comprising polystyrene particles dispersed in a hydrogel matrix (continuous phase as described in Applicant's

specification), a quantity of solvent (surfactant such as sodium-di(1,3-dimethylbutyl)sulfosuccinate or water containing N-isopropylacrylamide (instant claim 21)), emulsifier in the form of micelles (emulsion polymer electrically charged monodisperse particles) and a quantity of polymerization initiator (crosslinking agent, free-radical initiator to initiate polymerization or UV photoinitiator) dispersed in the solvent, and the thermally coalescable material comprising a monomer (mixing the desired monomer with a crosslinking agent) (col. 9, lines 24-31) (instant claim 20) dispersed in the solvent (14, Fig. 2 and associated text) (such compositions are commercially available) to create a film (col. 8, lines 15-45, col. 9, lines 20-33 and 50-65) and applies a laser beam to write a pattern in the CCA (embraces a plurality of areas and network as per instant claims 1, 19, and 23-34) to create a mutli-colored display including computer display devices (col. 11, lines 18-45). See also col. 3, lines 25-50, col. 8, lines 20-68, col. 9, lines 10-35, and Figure 2. See Figure 2 showing multiple areas between the particles and contained in (sandwiched between) a thermoplastic (polymeric) transparent body and cover (first substrate of LEXAN transparent thermoplastic carbonate (polycarbonate) and second substrate, col. 7, lines 2-20, see top 28, Figure 2 and associated text and bottom portion 18 of the chamber 16 in Figure 2). Asher teaches the polymeric transparent body that contains polymeric particles of polycarbonate is also adhered to a metal indium substrate layer (col. 10, lines 60-68) (instant claim 22). Asher also explains the CCA film functions as self supporting polymeric films (col. 9, lines 20-23) and teaches another embodiment such as a display device comprising the thermoplastic CCA in three-stacked layered films (col. 9, lines 50-60, col. 10, lines 25-55) (thus functioning also as first and second thermoplastic substrate comprising thermoplastic films per instant claims 4-5). Claims 1-5, 7-13,

and 19-24 are met. To claim 2, the particles are between 50-500 nm, (col. 9, lines 30-32 and col. 11, lines 49-50), thus meeting Applicant's rang of less than 400 nm. Further, because the same materials and same energy beam marking is performed with a laser, the polymers are deemed "thermally coalescable" and are "coalesced into bodies characterized by an average dimension that substantially exceeds the average dispersed body size" (see Applicant's page, 4, lines 11-22, page 7, lines 4-5, page 8, lines 7-8 and page 9, lines 21-23 to the same process and same materials used, thus the same results must be present). Further that material is able to or capable of coalescing or polymerizing, is intended use and is not germane since it has been held that an element that is "being able to" perform a function is not a positive limitation but only requires the ability to so perform. *In re Hutchinson*, 69 USPQ 138. Language that suggests or makes optional but does not require steps to be performed or does not limit a claim to a particular structure does not limit the scope of a claim or claim limitation.

6. Claim 16 is rejected under 35 U.S.C. 102(b) as being anticiapted by USPN 4,256,805 to Tugukuni et al.

Tugukuni teaches a core shell polymer particles having one color in the core and a second color in the shell made into a film (Abstract, col. 2, lines 20-25, col. 3, lines 1-30, col. 9, lines 35-50, col. 10, lines 25-30). That material is able to or capable of being energetic beam markable, is intended use and is not germane since it has been held that an element that is "being able to" perform a function is not a positive limitation but only requires the ability to so perform. *In re Hutchinson*, 69 USPQ 138. Language that suggests or makes optional but does not require steps to be performed or does not limit a claim to a particular structure does not limit the scope

of a claim or claim limitation. Further because the same material is used, it functions in the same manner.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 6,094,273 to Asher et al. in view of USPN 6,627,299 to Feng et al.

9. Asher essentially teaches the claimed invention above.

10. While Asher teaches a first thermoplastic substrate of polystyrene (PS) or PMMA, Asher does not teach *per se,* the first thermoplastic substrate of comprises a thermoplastic film of polycarbonate (PC) or polyethylene terephthaltate (PET), or polybutylene terephthalate (PBT).

11. Feng teaches any thermoplastic resin particles including PS, polymethacrylates (PMMA), polycarbonates, PC, PET, PBT, and copolymers and mixtures thereof (col. 8, lines 9-30) are resins capable of reacting to laser energy and foam and make up a multi-colored laser mark designed article (col. 3, lines 30-35, col. 5, lines 20-68, col. 6, lines 20-55, and col. 7, lines 10-68),

12. Thus, it would have been obvious to one having ordinary skill in the art to have substituted PC, PET, or PBT resin as a suitable equivalent thermoplastic material in the film of PS/PMMA of Asher because Feng teaches PS, PMMA, PC, PET, and PBT are equivalents used

as resins that are laser marked (col. 3, lines 30-35, col. 5, lines 20-68, col. 6, lines 20-55, col. 7, lines 10-68, and col. 8, lines 9-30 of Feng).

Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 6,094,273 to Asher et al., as applied to claim 10, and further in view of USPN 5,596051 to Jahns et al.

Asher is relied upon above for claim 10.

To further address claim 11, while Asher does not refer to encapsulated quantities of said ingredients of claim 10, Jahns teaches an emulsified polymerization of monomers including solvents, monomers, and polymerization initiators are encapsulated to form microencapsulated capsules containing a core and shell used in applications where when elevated temperature is applied the microcapsules are opened to control the release of the protected core material (Abstract, col. 1, lines 5-10, and col. 6, line 65-col. 7, lines 10 of Jahns).

It would have been obvious to one having ordinary skill in the art to have modified the Asher reference to further encapsulate the additives of claim 10 because Jahns teaches emulsified polymerization of monomers including solvents, monomers, and initiators inherently form microencapsulated capsules containing a core and shell used in applications where when elevated temperature is applied the microcapsules are opened to control the release of the protected core material (Abstract and col. 6, line 65-col. 7, lines 10 of Jahns).

13. Claim 17-18 is rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 4,256,805 to Tugukuni et al. in view of USPN 6,652,983 to Mori.

14. Tugukuni essentially teaches the claimed invention.

15. The particles of Tugukuni are coated on metal (heat reflecting) or plastics (thermoplastic sheet) at col. 10, lines 25-30. Tugukuni does not state the coating is sandwiched between two

sheets or where a heat reflecting second layer is on the first thermoplastic sheet, however, because the colored particles are coated on substrates of metal or plastic, it would have suggested to one having ordinary skill in the art being used on plastic and heat reflecting substrates.

Further, Mori teaches an in mold decorative sheet comprising a patterned base of polycarbonate (52, FIG. 16 and associated text) between thermoplastic layers (64, 54, FIG. 16 and associated text), and metallic indium sheet (53, FIG. 16 and associated text) supported on first thermoplastic (54, FIG. 16 and associated text). 64 is of PMMA or acrylic. 53 is of a metal thin film that may further be surrounded on either side of thermoplastic films including vinyl resin, acrylic resin, or urethane. 54 is of acrylic, polystyrene, or EVA (also meeting thermoplastic first sheet). See also col. 29-col. 31, line 40.

It would have been obvious to one having ordinary skill in the art to have modified the plastic multicolored particle core-shell layer of Tugukuni to employ plastic and metal substrates as per claims 17-18 require because Tugukuni teaches coating the multicolored particle layer on metal and plastic and Mori teaches the construction of FIG. 16 provides a three-dimensional, decorative article (Abstract, FIG. 16 and associated text, and col. 29-col. 30, line 40 of Mori). Thus, in combination the invention would teach the instant invention making a three-dimensional, colorful, decorative article.

Response to Arguments

Applicant's arguments have been considered but are moot in view of the new ground(s) of rejection. Applicant argues Asher not teaching an article as in the amended claims, however, support was found for the amendment as noted above. Applicant argues Asher doesn't teach a

network of particles, however, the Examiner used the broadest interpretation of "network" and thus Asher teaches tons of particles and arrays shown in Fig. 2 just as Applicant shows in the instant Figures.

Applicant argues one having ordinary skill in the art would know how to make the invention (instant claim 11) and points to the Google website, however, Applicant has not described the invention with specificity to teach one how to make their invention. Thus, the 112 lack of enablement is maintained.

The Jahns reference applied to claims 16-18 is withdrawn as the Examiner believes Jahns does not show the shell having a second color as Applicant argued. Tugukuni, cited of interest prior, is now used in the rejections to teach the second color in the shell.

Applicant argues the use of Mori to being in a different class, however, general teachings of the art may be applied as Mori is in the same realm of polymeric articles as is Asher. Thus, Mori is still used to teach the construction of polymers and metal ordered as recited in instant claims 17-18.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tamra L. Dicus whose telephone number is 571-272-1519. The examiner can normally be reached on Monday-Friday, 7:00-4:30 p.m., alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rena Dye can be reached on 571-272-3186. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Tamra L. Dicus
Examiner
Art Unit 1774

March 31, 2006

RENA DYE
SUPERVISORY PATENT EXAMINER
A.U. 1774 4/6/06